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AAR-100
April 15, 1999
R,E&D

Soaring into the Future: Funding Requirements for FAA R&D

Mr. Wolf. Human error accounts for the vast majority of aviation accidents, yet the FAA makes a relatively small investment in research to understand the bases of human error. Are the funds that FAA spends on aviation safety tied in some meaningful way to understanding and mitigating human error as the dominant cause of aviation accidents?

Yes, the research projects that the FAA's Human Factors Research Program funds are addressing specific issues in aviation safety and developing mitigation strategies to ameliorate human error in Air Traffic Services (ATS), aviation maintenance, and flight deck operations.

ATS safety research is examining controller operational errors and deviations using automated tools for reconstructing and investigating operational events. This capability enables operators to better understand the dynamic conditions prior to, during, and following operational errors, accidents, incidents, or other events, thereby lowering the probability of future reoccurrence. There are two Congressionally mandated multi-year projects being conducted in Fiscal Year 1999. One project consists of examining how controller fatigue, which results from rotating schedules of shift work, contributes to human error. The other project is assessing the contribution to human error from different levels of English language proficiency for controllers in other countries such as in issuing instructions and clearances to pilots.

The aviation maintenance research program has several projects directly focused on human error and performance enhancement including: identifying and cataloging human errors of omission in heavy maintenance, evaluating error risks in flight-line operations, investigating the effects of the maintenance working environment and fatigue on errors and accidents, and developing alternative maintenance team training techniques.

Flight deck human factors research identifies sources of pilot/crew performance errors (such as situational awareness) and develops strategies for their mitigation through development of guidelines and appropriate regulatory material. This research investigates pilot performance capabilities and limitations with individual and integrated communications, navigation, and surveillance systems. Research methods are applied to gather and analyze human factors data as a basis for developing recommendations to minimize pilot errors through enhanced air crew training in areas such as: aeronautical decision-making, flight deck automation, and cockpit crew resource management.

The Human Factors research program is tightly coupled with the National Aeronautical and Space Administration (NASA) Aviation Safety Program. FAA and NASA are

working together to harmonize safety research goals and leverage limited resources to effectively address accident prevention and mitigation.